BACKGROUND REPORT TO A PLAN FOR A MENTAL HEALTH RESEARCH PROGRAM FOR ALBERTA

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MENTAL HEALTH RESEARCH IN ALBERTA – RATIONALE, CONTEXT, CURRENT RESOURCES AND OPPORTUNITIES

This report has been prepared for the Provincial Mental Health Research Plan Working Group as a working paper in the development of: *"A Plan for a Mental Health Research Program for Alberta"* by staff and consultants working with the Alberta Mental Health Board/

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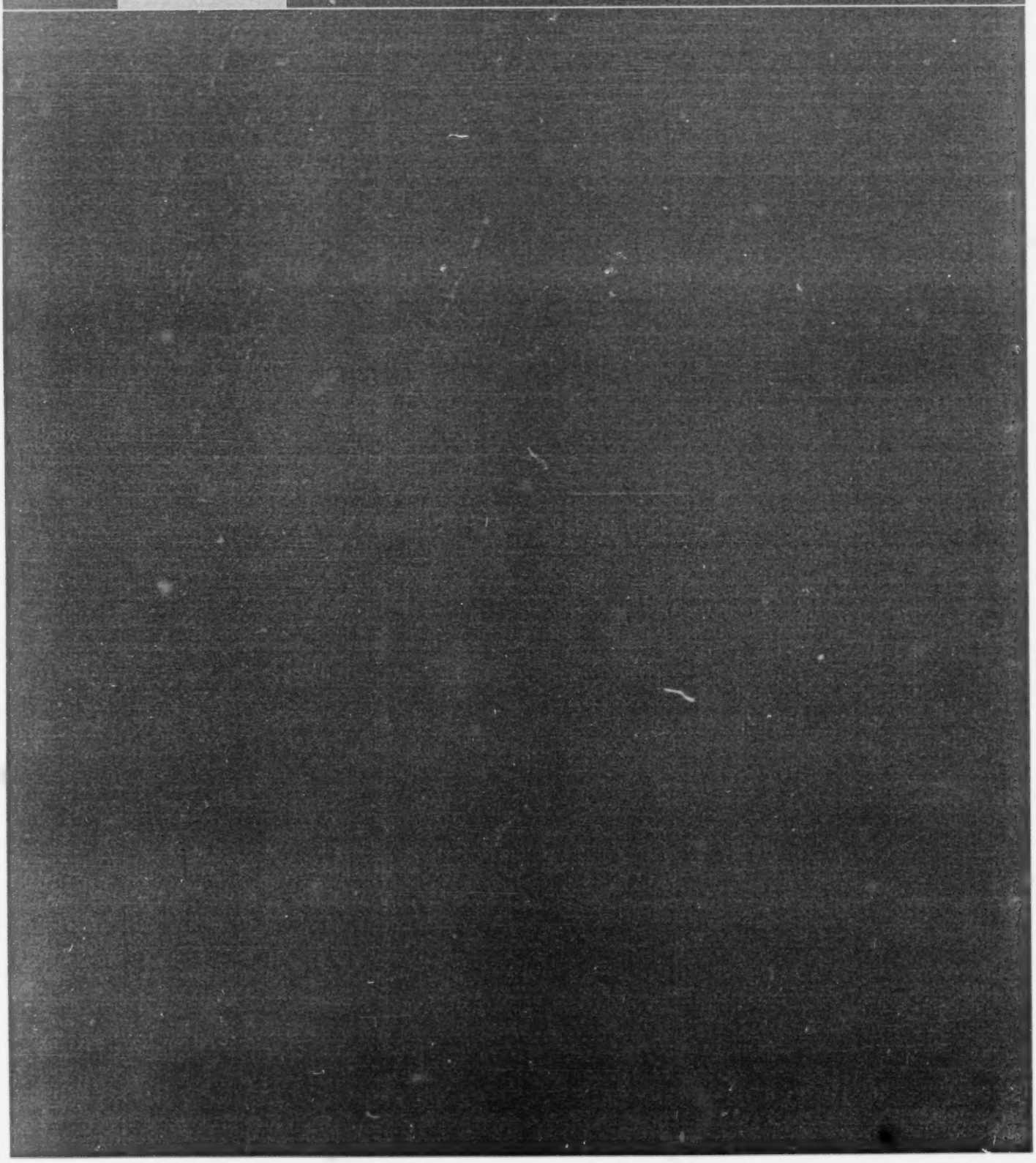

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OVERVIEW

This Working Paper is intended as a background report for the document "A Plan for a Mental Health Research Program for Alberta".

It situates Alberta mental health research in both provincial and national health research contexts, outlines the importance of mental health research in reducing the impact of mental illness and advancing a mentally healthy population, and details current resources and opportunities which will form the basis for a new integrated model of mental health research in the province.

THE IMPACT OF MENTAL ILLNESS

The impact of mental disorders, among nations and relative to other health problems, has only recently been systematically characterized. In a recent worldwide analysis on the global burden of disease at Harvard University (commissioned by the World Health Organization (WHO) and the World Bank), it is predicted that mental disorders and closely related neuropsychiatric illnesses will be four of the top five causes of disability in the world by the year 2020. The study also found that even now, five of the ten leading causes of disability for persons aged five years and older are mental disorders, and that the disease impact attributable to these disorders will rise from just under 11% in 1990 to at least 15% by 2020 (a bigger proportionate increase than for cardiovascular diseases). The inclusion of a broader set of neuropsychiatric conditions increases this proportion to 28%. These estimates are based on the *conservative* assumption that the increases will be due to an ageing population alone, and not increases in disease rates. Among the array of disabilities, mental health problems showed the lowest percent of recovery to full working and social capacity.[1]

In Canada, it is estimated that at least 2% of the population are afflicted with severe and persistent mental illnesses (e.g., schizophrenia/psychosis, severe bipolar disorder and major debilitating depression). Health care requirements for these individuals are extensive and expensive. An additional 18% of the population suffers from less serious mental health problems.[2] Mental health problems are among the most costly groups of health conditions.

The costs of directly funded mental health services (including hospital and clinic costs and physician billings, but not including medication costs or either private or public community agency services or costs for mental illness as a secondary diagnosis) in Alberta have been estimated for 2002 at $ 573 million (8.4% of all provincial health services).[3] The *total* national estimated impact of mental illness (1998 dollars) has been pegged at $14.4 billion, including healthcare services *as well as* societal costs such as lost productivity, disability and early death.[4] This and other recent studies that have also measured costs more broadly (including costs borne by families, out of pocket costs, private care costs and lost productivity) have also produced much larger total cost estimates than previously-believed.[5]

The dramatic impact of mental illness in the workplace has begun to be recognized only very recently. Eight percent of workers have a diagnosable mental disorder. Mental and emotional health problems in the workplace manifest as decreased productivity, absenteeism and disability days. Productivity losses due to mental illness in Canada have been estimated at $4.5 billion annually, and 30% of disability claims ($15 – 33 billion) are attributed to mental illness. No comparable figures are available for Alberta, and little research exists anywhere on this topic.[6]

The role of research in improving health and healthcare

In modern society, the need for information to optimize healthcare (and ultimately the health of the population) is critical. It can be argued that the effectiveness of our health delivery system in improving population health is directly dependent upon the strengths and responsiveness of our health research capability because research is the source of information needed for evidence-based decision-making. Unfortunately, the lack of readily available, high quality data to inform decision-making in health continues to be a serious concern. The "research-practice" gap is universally recognized in major health policy documents. For example, the WHO has just released the *World Report on Knowledge for Better Health* (2004).[7] detailing this problem. Closer to home, the *Report Building on Values: The Future of Health Care in Canada* (Romanow Report 2002) noted a "startling lack of evidence on some important health services issues", and considered research to be key to the success of the Canadian healthcare system in the future.[8] In Alberta, the Report of the Premier's Advisory Council on Health (Mazankowski Report 2001) presented a vision for healthcare in Alberta that was grounded "in research, evaluation, evidence-based decision making, and a relentless pursuit of quality".[9] The Council recommended that we "make quality the top priority for Alberta's health system"; that we "set standards, measure results, and hold people accountable for achieving better outcomes in health"; and that "continuing investments in research are critical for the long term". The investments in research were seen as important to "facilitate evidence-based decision making and support Alberta's role as a leading centre of health and medical research".

Increasing opportunities for health research in Canada

The Federal government has recognized the importance of research for improved health and health services. Funding for health-related research and innovation has risen dramatically in recent years. The Canadian Institutes of Health Research (CIHR) were established in June 2000 with a $275 million initial investment.[10] Annual funds have increased to nearly $700 million in 2004/2005, and the annual number of grants has increased from 2440 to 3148 in the same time period, although there has been some very recent leveling off. CIHR has a clear mandate to support basic biomedical and clinical research but also *to enhance health services and population health research and to better integrate health research with Canada's healthcare system.*

Opportunities to harness new funds for integrated health research initiatives have never been better. However, it must be noted that although Canadians are witnessing an increase in federal financial support for health research, we still have a long way to go. A study conducted by the Alberta Health Research Strategy Working Group in 1998 found that Canada was far behind other developed countries such as the USA, United Kingdom, France and Australia who have made significant investments in both basic and applied health research.[11] The benchmark for health research funding, according to The Global Forum, an international consortium, is that about 3% of all health services budgets should be allocated for research (2% from government and 1% from industry).[12] Application of this standard to Alberta's mental health system (given annual health expenditures of approximately $573 million)[3] would suggest that about $11.46 million from public sources and another $5.73 million from private sources, for a total of $17.19 million should be invested. Some would argue that these figures still undershoot our requirements because critical mental health-related services are financed through many other public sources, such as Justice, income support, housing, etc.

Health services delivery organizations as key partners in health research

There is growing realization that in order to improve health systems outcomes, health research needs to occur close to and/or in collaboration with health services delivery organizations. The National Forum on Health (1997) recognized the importance of making decisions based upon scientific evidence and cautioned that a careful partnership between decision-makers and expert peer evaluators is needed to identify and capture the scientific evidence and make it available in a useful form.[13] The Forum recommendations stimulated the creation of the Canadian Health Services Research Foundation (CHSRF) in 1997. The CHSRF has a specific mandate to facilitating partnerships between decision-makers and researchers *to enhance the relevancy and utility of health services research. It funds collaborative programs of health services research that fit with that mission.*[14] A new field of scholarly activity (called Knowledge Translation or Knowledge Dissemination and Utilization) examining effective methods and models to bridge research and practice (including policy) has arisen. This information is being used to build newer, partnership-based research organizations and initiatives across the country. For example, the new Saskatchewan Population Health and Evaluation Research Unit (SPHERU) is a multi-partner (universities and the Saskatchewan Association of Health Organizations), interdisciplinary center designed to promote the use of population health research in policy and practice.[15]

Health research as a strategic opportunity for Alberta

Health research is considered a strategic opportunity for Alberta - it can lead to the realization of quality of life for Albertans as well as economic benefits for the province as a whole. There already exists a wealth of health research in Alberta upon which a foundation can be built for a strong health research "industry" that is coordinated, integrated, collaborative and supported. Unfortunately, there is a shortage of researchers in Alberta with expertise in health services research, particularly in population health, health promotion, health informatics and technology assessment.

Recognizing the need for a provincial strategy for health research, the Alberta Science and Research Authority (ASRA)'s provincial Health Research Strategy Advisory Group (HRSAG) suggested a strategic plan for health research for Alberta in 1998. The plan underscored the need to develop the necessary human capacity for health research excellence, to develop an integrated health information system, and to leverage funds from multiple sources to support health research in Alberta.[16] The HRSAG report also found Alberta's health information infrastructure to be weak, posing a problem for research in areas which traditionally need good information (such as population health, health outcomes and health policy). The study also noted that, traditionally, there has been a lack of cooperation between health disciplines in the planning and carrying out of research initiatives. More recently, Alberta Science and Innovation and ASRA have developed a Life Sciences Strategy.[17] The strategy considers life sciences, including health research, to hold "great promise for maximizing human health and minimizing the social and economic effects of disease". It calls for enhancement of research and development capacity through investment and support of high quality people.

Alberta is internationally recognized for excellence in clinical and biomedical research – however, research in other areas (services and population research) has received relatively recent emphasis. There are also identified needs for improvement in our overall strategy. A 1999 AHFMR SWOT (strengths, weaknesses, opportunities and threats) review noted in particular fragmentation of research, poor understanding of research by the public, and a lack of planning as some areas for improvement.[18]

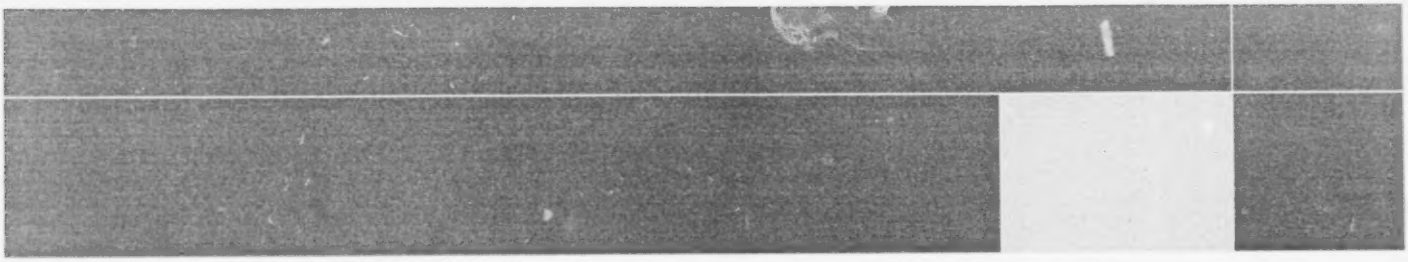
Major current health research initiatives in Alberta

Alberta has begun to build a cadre of health services and population health researchers with Alberta Health & Wellness (AH&W) contributing almost $6M in funding (see Table 1) to "improve the relevance and quality of research, increase the capacity of the health system to conduct research and apply health research results". Major health research programs funded by AH&W include the Alberta Cancer Board (ACB), the Institute for Health Economics (IHE) and the Health Research Collaboration Agreement (HRCA) with the Alberta Heritage Foundation for Medical Research (AHFMR).[19,20]

TABLE 1:
Health research programs funded by Alberta Health & Wellness

Alberta Health & Wellness R&D Budget ($ '000)	1998/99	2001/02	2003/04
ACB	2,800	5,300	2,800
IHE	250	250	250
HRCA	2,700	4,800	4,800

- **The Alberta Cancer Board (ACB)**: The ACB has status as a provincial oversight agency for cancer care delivery and disease monitoring as well as research in the province, and thus may be considered a model for research program development. Research is a cornerstone of ACB operations - one of its three core businesses is to "conduct and promote high quality cancer research". The ACB also enjoys a legislated population-based case registry for research and surveillance (the monitoring of population trends in health and disease). Currently, the ACB invests approximately $3 million of its $ 7.7 million annual budget on research projects (representing about 39%). Included in the budget are $ 2.8 million in contributions from the province, which has enabled the ACB to develop core elements of a provincial research program. In addition to government contributions, cancer-related research also benefits from fund-raising and donations procured by the Alberta Cancer Foundation (ACF), which provided more than $6.3 million in grants for patient care, prevention and research. Overall allocations increased more than 3.7 million in just 5 years, with funds for research alone increasing from $275,000 in 1998 to $ 3.3 million today.[21]



The societal disease impact of mental illness, measured as mortality *and* disability, is considered to be of even greater magnitude than cancer. Thus, provincial activities and investments in cancer research might be seen as a reasonable benchmark for provincial mental health research activities and investments.

- **The Institute for Health Economics (IHE):** The IHE is a consortium of academic, government, health industry and other organizations concerned with the economic outcomes of health care technologies and treatments. Since 1995, the IHE has been rapidly building capacity for general health economics and health services research, and is an enormous partnering resource for economic evaluation research.[22] For example, in collaboration with Wyeth Pharmaceuticals, leading researchers at the Universities of Alberta and Calgary, Alberta Health & Wellness, and the Alberta Mental Health Board, IHE launched in 2004 the Alberta Depression Initiative which will fund policy and practice relevant research in the diagnosis and treatment of depression in Alberta.

- **Alberta Heritage Foundation for Medical Research (AHFMR) and the Health Research Collaboration Agreement (HRCA):** Since 1980, AHFMR has promoted world-class medical research in the province. The initial emphasis on biomedical research has expanded to clinical research, and since 1992, population health and health services research. In 2003/2004 AHFMR spent over $52.5 million in support of health research in Alberta. AHFMR has also been active in developing applied research programs with financial support from Alberta Health and Wellness through the HRCA 1995.[18]

  The HRCA called for AHFMR to develop and implement a health research agenda for Alberta, and to ensure the effective use of health research funds. Under the agreement, AHFMR assumed responsibility for the management of the Health Services Research and Innovation Fund and the Mental Health Research Fund, both formerly managed directly by AH&W. Operating grants are now provided from a single fund called the Health Research Fund (HRF). Approximately 15 to 20 new HRF operating grants are awarded to Alberta investigators annually. In 2003 – 20-25% of these grants were related to mental health issues.[19,20] AHFMR also provides salary support to independent investigators through its Personnel Awards programs and stipends to students and post-doctoral fellows. AHFMR has responded to its own Task Force Report "Research in Practice" (published May 1999) that concluded that "in order for relevant health research problems to be identified and for research findings to have real impact, there needs to be a closer relationship between research activities and service delivery organizations."[17]

  AHFMR has been a leader in directing research initiatives toward application in policy and practice (also known as Knowledge Translation). AHFMR sponsored programs include the Swift Efficient Application of Research in Community Health (SEARCH) Program, uniquely developed in Alberta.[23] Through training and networking, SEARCH has been developing practice-based professionals' skills in choosing, using, and creating research evidence in regional health authorities in the province since 1996. The SEARCH model is considered to be leading edge in the country and internationally. Similarly, AHFMR's Health Research Transfer Network of Alberta (RTNA) brings together researchers and practitioners with interest and expertise in research transfer.[24] Other AHFMR initiatives are the Alberta Consultative Health Research Network (ACHRN) and the Health Technology Assessment Unit (HTA).[25,26] ACHRN provides consultation to the practice community on research design, while the HTA conducts systematic reviews of current health technologies to support evidence-based decision-making. Finally, the Community Research Ethics Board of Alberta (CREBA) has responded to an identified need for ethical review of regional and non-university-based research.[27] All of these initiatives represent models, in the general health research context, that can support and add value to the enhancement of mental health research in Alberta.

  A recent International Board of Review examined AHFMR's directions and accomplishments from 1998-2004. The Board recommended that AHFMR move beyond its legacy of building a broad research base toward, in partnership with stakeholders, the support of more strategically focused initiatives in biomedical research that could be world class centers of excellence. It also applauded AHFMR for its increasing emphasis on population health and health services research, and recommended the continued pursuit of partnership-based transdisciplinary applied health research.[28]

  The health research environment is becoming very dynamic in Alberta. AH&W, AHFMR, universities and industry have partnered on a number of new and innovative *general* health research initiatives (Table 2).

TABLE 2:
General health research partnership initiatives in Alberta

Initiative	Primary Partners	Described Purpose
Centre for Health Organization Studies **http://www.bus.ualberta.ca/hos/**	U of A School of Business AHFMR, CHSRF, CIHR	To bring together researchers and decision-makers to investigator significant organizational issues in health care
Centre for Health and Policy Studies **http://www.chaps.ucalgary.ca/**	U of C, Kanahoff Foundation, Calgary Health Region	To undertake quality health research of benefit to policy-makers, health care managers and providers, health researchers and Albertans alike
Markin Institute of Public Health (website not yet established)	Philanthropic Donation, U of C multiple Faculties	Under development
Centre for Health Outcomes Research (website not yet established)	U of A, Capital Health Authority	To increase health outcomes research capacity and the translation of this knowledge into practice
Centre for Knowledge Transfer **http://www.ckt-ctc.ca/English/home.htm**	U of A, U of Manitoba, Laval University, U of Saskatchewan, AHFMR, CIHR, CHSRF	To contribute to the improved transfer of knowledge for the betterment of health policy and health care services
John Dossetor Health Ethics Center **http://www.ualberta.ca/BIOETHICS/**	U of A, PHEN	To promote professional and public reflection, debate and research on matters of ethical and moral concern in our healthcare facilities and in our community
Global e-health Research and Training Program and the Health Telematics Unit **http://www.md.ucalgary.ca/Medicine/Centres/TeleHealth/index.jsp**	U of C, CHR, Alberta Wellnet/U of A, ARC	Dedicated to e-health research, training, and consultation
Centre for Health Promotion Studies **http://www.chps.ualberta.ca/**	U of A	A premier provider of health promotion graduate education and research with extensive community and academic partnerships
Health Law Institute **http://www.law.ualberta.ca/centres/hli/**	U of A, ALF, AHFMR	A national centre for health law providing public legal education and undertaking research on current issues
Center for Health Evidence **http://www.cche.net/che/home.asp**	U of A, AHFMR, HISP, MACI, U of Manitoba	The CHE uses innovation, instruction and investigation to help health professionals put their best knowledge to work

An environment and capacity for population health research and health services research in Alberta has been stimulated by these initiatives. In addition to research funds contributed by AH&W/AHFMR, significant funds are also received for health/medical research from out-of-province and out-of-country sources. Approximately $65 million in health/medical research funding came from external sources in 1994/95. Today the amount is over $250 million.

In terms of specific mental health research, Alberta is very competitive relative to its population base, procuring about 12% of CIHR grants overall in 2003. However, the majority of projects funded are in the basic sciences (Fig. 1). In dollar terms, the specific breakdown by pillar was: pillar 1 - $24,002,942; pillar 2 - $4,758,770; pillar 3 - $988,642; pillar 4 - $1,578,531. This translates to approximately $25,813,235 for broader neuroscience research, and $5,515,650 for research specific to mental illnesses.

The total allocation to each research pillar is almost exclusively driven by the number of projects funded, since the funding amount *per project* is very similar across the four pillars (Fig. 2).

Nonetheless, it is apparent that mental health funding in Alberta has some areas of strength while other segments receive relatively less attention. A good balance is important for attracting researchers across the scientific spectrum, and for maintaining a vibrant multidisciplinary community with viable opportunities for collaboration. This is one of the challenges facing Alberta researchers in mental health today.

FIGURE 1.
Number of CIHR projects funded in each pillar (1999-2005)

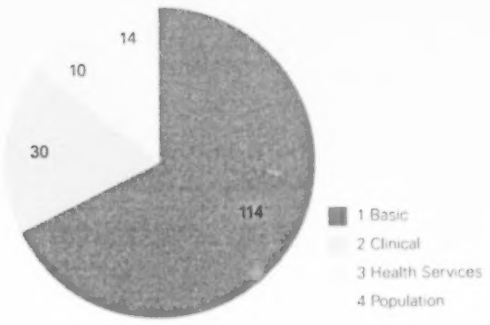


FIGURE 2.
Median values of CIHR per project funding in Neuroscience and Mental Health by pillar (1999-2005)

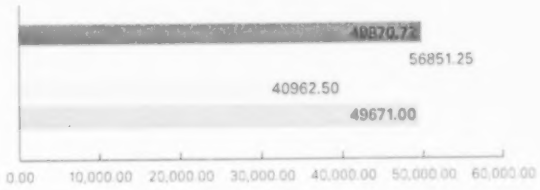


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FIGURE 1.

FIGURE 2.

WHY A RESEARCH AGENDA FOCUSED ON MENTAL HEALTH IS NEEDED

Given that Alberta has a successful record for health research, one might conclude that mental health research is well served by its current contingent of health researchers and (as a component) by each of these general health research enterprises. While these organizations and funding opportunities represent key resources for improvement of health and health services in the province more generally, none of them places much emphasis on mental health and mental health service specific problems. Neither do they draw individual mental health researchers together on common goals. Through linkages, their specific expertise (e.g. organizational change, evidence-based practice) can add value to a mental health research effort, but *without a coordinated focal point progress on mental health issues will be slow and resource inefficient.*

Research as a major solution

The WHO's *World Health Report 2001 – Mental Health: New Understanding, New Hope* concludes, "the burden of mental and behavioral disorders will only be reduced if effective interventions are developed and disseminated".[30] The report identified an urgent need for all types of research, but placed particular emphasis on "implementation or dissemination research into those factors likely to enhance the uptake and utilization of effective interventions in the community". The report also outlined a set of priority areas for research. The US Surgeon General's Report also called for research and dissemination of best practice.[31] Very recently, in its Interim Report on Mental Health, Mental Illness and Addiction, the Canadian Senate Committee called for funding commensurate with the bearing of illness (suggesting an increase from 33 to 80 million annually for the CIHR Institute of Neuroscience, Mental Health and Addiction), confirmed the need to increase services and population mental health research, and identified the critical need for knowledge translation. The report noted that adequate funding for research and dissemination are "key elements of a national strategy to foster mental health and treat mental illness".[32]

The Global Forum on Health reported "...health research has suffered from an overall lack of funding and from a huge discrepancy between the allocation of research funding and the diseases or conditions that account for the highest global disease burden".[12] Mental disorders are a prime example of this problem. Research on mental disorders has historically been under-funded relative to their societal impact. The only Canadian study on the issue dates to 1990 when mental health research funding was found to be less than a third of what it should have been in relation to mental health care costs.[33] In 1999, Gross et al. also showed that depression and schizophrenia were under funded by the U.S. National Institutes of Health (NIH) according to this standard.[34] In Canada, CIHR investment in mental health research is low (5.3%) relative to other countries (UK 6.5%) and the U.S. (10%) and as a function of disease impact (currently between 11 and 15%).[32] Because of the fragmentation of investment and effort it is nearly impossible to obtain local figures for investments in mental health research for benchmarking. However, recent figures from AHFMR[29] suggest that neuroscience and mental health are steadily increasing in terms of the percentage of funding they receive, from 26% in 1999 to over 33% in the current year. In real dollars, this translates to an additional $4,456,457 for mental health and neuroscience.

The need for knowledge transfer in mental health

The WHO World Health Report on Mental Health (2001) emphasized that research has provided the knowledge needed to deliver effective treatment and better services for most mental disorders, but that significant gaps exist between what research has shown to be optimally effective treatments and what many people receive in actual practice settings.[30] This is because a complex and fragmented mental health service delivery system, financial barriers and stigma have blocked appropriate services delivery and necessary care. The 1999 U.S. Surgeon General's report stated that there are now "unprecedented challenges for the organizing, financing and delivery of effective mental health services".[31] Mental disorders are somewhat of a special case with respect to the need for health services research, because unlike cancer, for example, only a portion of diagnosed cases in any random community sample will seek or receive care, for a variety of complex reasons. The task of allocating scarce health resources to maximize health gain in the population must take into account many factors, including need (considering both unmet and overmet need), severity and disability, and treatment and prevention effectiveness. Defining any one of these as well as their combined effects, requires sophisticated research support.[35] We have new sources of population-based data from the Alberta Mental Health Survey to begin to tackle these issues.[36]

Fortunately, there is increased availability of clinical effectiveness research at the patient level and program levels. The international "evidence-based practice" movement has come to mental health and is centered in the Evidence-based Mental Health Centre in Oxford.[37] This group provides systematic reviews of evidence for various technologies and treatments that can be disseminated to care providers and managers through coordinated collaborative research transfer efforts. This is a major development in clinical research and represents a resource that can be used to improve practice in Alberta if there was a mechanism to facilitate knowledge transfer. In contrast, at the systems and policy levels, mechanisms for research synthesis and knowledge transfer in mental health are in their infancy. However, the value of mental health population and services research in informing policy is well recognized. "Expert professional and epidemiological advice to ministries is essential if policy is to be rooted in the evidence for population needs, risk factors, effective treatments and services, and measurement of outcomes."[38] In addition "best-practice" recommendations for linking research and practice in general health services are increasingly available.[39,40,41,42]

Mental health research as a best practice

Research is now considered a "best practice". According to the Federal/Provincial/Territorial Advisory Network on Mental Health, "further research on the effectiveness of services and supports and the impact of system change needs to be mandated and funded".[43] The systematic measurement of mental health system performance is in its infancy at all levels (i.e., from client and program outcome measures to system outcomes moving toward integrated service delivery models). Although a number of provinces have implemented mental health system reform initiatives in an attempt to address systemic issues in the organization and delivery of mental health services, the huge task of linking client and program outcome measures to system performance still needs to be addressed.

An increased profile at all levels for mental health research will help engage the public in this challenge and help combat stigma. Research on mental illnesses has also been actively advocated by mental illness sufferers, their families and by the general public. For example, a key objective of the Canadian Alliance for Mental Illness and Mental Health (CAMIMH) is to achieve a national research agenda on mental illness.[44] In Alberta, population based surveys (1988 and 1997) showed strong public support for research as an additional approach needed for dealing with mental illness.[45] The Alberta Alliance for Mental Illness and Mental Health (AAMIMH), representing consumers, professionals and key community agencies, has strongly advocated for and participated in the development of a mental health research agenda for the province. Their recent report *Partnership, Participation, Innovation: A Blueprint for Reform* (March 2003) lists research and evaluation as critical areas in contributing to the goals of meeting the needs of persons with mental illness, enhancing the potential for positive mental health for Albertans, and ensuring that the mental health system reflects best practices.[46]

Canadian mental health research developments

Several models for mental health research programs also exist in other Canadian provinces:

- Ontario – The Centre for Addiction and Mental Health (CAMH). CAMH is a major service provider and research organization that receives (annually) about $250,000,000 from the government of Ontario (for service, education and research), as well as funds from its fund-raising arm – the CAMH Foundation, and competitive grants from the Ontario Mental Health Foundation (OMHF) and other research funders.[47] CAMH's Health Services Research and Consulting Unit (affiliated with the University of Toronto) is the major hub of service and policy research and knowledge transfer. It is staffed by eight fully funded scientists and one jointly-funded knowledge broker, who serves as a link to the Ministry of Health. The Unit provides fee-based research consulting services. Links to practice settings are developed through joint projects. While CAMH has the greatest concentration of mental health research in the province, there are many other diverse research activities in university and service settings across the province. At present there is no systematic planning or priority setting process, or measurement of research impact.[47]

- Ontario – The Ontario Mental Health Foundation (OMHF). Based in Toronto, the stated purpose of the foundation is to promote the mental health of people living in Ontario, to prevent mental illness and to improve diagnosis, treatment and rehabilitation.

- Quebec – Most mental health services research in Quebec has been facilitated through a network approach – the FRSQ (Fonds de la Recherché en Sante) sponsored Quebec Mental Health and Neuroscience Network.[48] A variety of connections between funders (the FRSQ and the Quebec Social Research Council), academic researchers and service providers (both public health and hospitals) have developed gradually over time. The Douglas Hospital Research Center is an example of one of these, and includes neuroscience, clinical and psycho-social research divisions. More emphasis has been placed on services research in the last five to seven years, through informal processes, but funding for this type of research is still considered to be below international benchmarks. There is no centralized priority setting process or tracking of research impact/outcomes.[49]

- British Columbia – The Mental Health Evaluation and Community Consultation Unit (MHECCU) has operated out of the Dept. of Psychiatry at the University of British Columbia since 1999. MHECCU has the mandate "to improve mental health outcomes for British Columbians and other Canadians by linking research, education and policy making at community, clinical, administrative and broader system levels". The Unit is a non-profit university-government partnership. Core funding comes from government, and additional funding is procured through competitive research grants, contracts, and unrestricted industry grants. An advisory board of university representatives and senior government ministries guides the activities.[50] Mental health research is in dynamic evolution in both government and academia in British Columbia, and representatives from both sectors have communicated interest in developments in Alberta and the potential for future linkage and collaboration.[51]

International mental health research developments

Looking abroad, the recognition of the value of mental health research by policy-makers, researchers and the public has led to the establishment of mental health research centres and mental health research foundations in many jurisdictions around the world. For example, as part of their National Plan (2003-2008) for mental health services, the Australian government has featured "fostering research, innovation and sustainability" as a key theme. Innovation is strongly encouraged and supported including research into causes of mental illness, and the effectiveness and cost-effectiveness of new treatments and models of service delivery.[52] New Zealand's Mental Health Research and Development Strategy calls for creating a research culture in the mental health sector through networking and collaboration to encourage the use of existing knowledge for evidence-based practice.[53] The report also identified epidemiology, outcomes measurement and case mix methods as priority areas for research. In the US, one of six goals of the President's New Freedom Commission on Mental Health is "excellent mental health care is delivered and research is accelerated."[54] While reports of measurable impact of broad mental health research investments are rare, some notable examples of impact of specific research initiatives on policy and services can be found.[55]

Table 3 lists examples of focused mental health research foundations internationally, while Table 4 lists organizations that have a *primary* mental health research focus.

The traditional split between research and practice is still seen in many mental health research and evaluation organizations – in that they exist as primary initiatives of either *government or academia*. These models perpetuate the research-practice gap. In Alberta we have an opportunity to build a research enterprise as a true partnership, one that bridges research and practice in unprecedented ways.

TABLE 3:
Examples of international mental health research foundations

Mental Health Research Foundation	Location	Described Purpose
The Australian Foundation for Mental Health Research **http://mentalhealth.anu.edu.au/main.htm**	Canberra, Australia	Funds scientifically researched community initiatives and interventions for mental health problems and to promote mental health literacy and stigma reduction through national mental health awareness-raising activities
The Mental Health Foundation **http://www.mentalhealth.org.uk/**	London and Glasgow, UK	Uses research and practical projects to help people survive, recover from and prevent mental health problems
National Institute of Mental Health **http://www.nimh.nih.gov/**	Rockville, MD	Works to improve mental health through biomedical research on mind, brain, and behavior
Hogg Foundation for Mental Health **http://www.hogg.utexas.edu/**	Austin, Texas	Develops, supports, evaluates, and promotes culturally relevant mental health services, research, public policies, and education
Mental Health Foundation of New Zealand **http://www.mentalhealth.org.nz/**	Auckland, NZ	Works to improve the mental health of all people and communities in New Zealand

TABLE 4:
Mental health research organizations with a mental health focus

Mental Health Research Organizations	Location	Described Purpose
Mental Health Research Network **http://mhrn .nfo/about.html/**	London, UK University/practice partnership (national)	"to support vital large-scale research which will help to raise the standard of mental health and social care research throughout England"
Institute of Psychiatry at the Maudsley **http://www.iop.kcl.ac.uk/**	London, U.K. University-based	Research in psychiatry, psychology, and allied disciplines, including basic and clinical neurosciences
Australian National University Centre for Mental Health Research **http://www.anu.edu.au/cmhr/about.php**	Canberra, Australia University-based, but strong partnerships	Research into mental health problems in the community, including research on risk factors, causes and outcomes of mental health disorders using large epidemiological surveys
Florida Mental Health Institute http://www.fmhi.usf.edu/	Florida, USA, University-based	Research and training centre for behavioural health services research
Queensland Centre for Mental Health Research **http://www.qcsr.uq.edu.au/**	Brisbane, Australia, University-based	To reduce the burden of illness for people with serious mental illness
Substance Abuse and Mental Health Services Administration **http://mentalhealth.samhsa.gov/**	Washington DC US Government	Service planning and policy but also sponsor research projects
The National Association of State Mental Health Program Directors Research Institute, Inc. **http://nri.rdmc.org/**	Alexandria, Virginia Independent sponsored corporation	To promote quality and accountability of mental health services by generating and facilitating the use of relevant research, data and information
The Center for Mental Health Policy and Services Research **http://www.uphs.upenn.edu/cmhpsr/**	Philadelphia, Pennsylvania University-based	Research on the organization, financing, and management structure of mental health care systems and the delivery of mental health services
Centre for Mental Health Services Research **http://www.cmhsr.com.au/**	West Perth, Australia Bridging organization – government and academia	Strategically driven research that improves the effectiveness of mental health service delivery and policy
Vanderbilt Centre for Mental Health Policy **http://www.vanderbilt.edu/VIPPS/CMHP/cmhphome.html**	Nashville, Tennesse	Child, adolescent and family mental health services research
Victorian Centre for Research and Practice in Mental Health Promotion **http://www.vichealth.vic.gov.au**	Victoria, Australia	To conduct and stimulate high quality research to guide and support action to achieve mental health and wellbeing outcomes across the population

The value of an Integrated Mental Health Research Program for Alberta

The mental health of a population represents critical "psychological capacity" for adaptation to change, innovation, productivity, and competitive advantage. "Mental health policy is increasingly recognized as an essential area for countries wishing to enhance their economic, social, and human capital".[38] The connection between mental health and economic prosperity has received recent prominence in the business community. The Business and Economic Roundtable on Addiction and Mental Health was recently founded to raise awareness of this connection.[56] CEO Bill Wilkerson has written a report that has been praised by the World Federation for Mental Health. The report concludes "The outstanding qualities of outstanding people are resilience, values, outlook and mindset, all of which contribute to emotional well-being and generate human capital. And all of which define mental health as the ultimate productivity weapon of the 21st century".[57] It is becoming increasingly evident that the degree to which the impact of mental disorders can be alleviated and mental health of the population improved, is the degree to which society can advance. Increased mental health of the population (through synergistic and integrated research) may have more potential than virtually any other area of health improvement to support Alberta in becoming the "best place to live, work and visit".[58]

Despite this potential, no consolidated mental health research effort currently exists in Alberta. Our Plan for a Mental Health Research Program recognizes that there is still much more work to do in building the research capacity in this province, in particular in the areas of health services and population health research; to enhance the relevancy of research; and to ensure it is used to support practice and policy.

CURRENT AND POTENTIAL RESOURCES FOR MENTAL HEALTH RESEARCH IN ALBERTA

Our researchers

Alberta currently has an active contingent of researchers in biomedical, clinical research; and in mental health services and population mental health research in its universities, colleges and larger health regions. These individuals are internationally competitive and capable.

To date, the work of these researchers has been relatively fragmented and only minimally linked with service delivery. We have not harnessed their potential into a more integrated and focused effort. We have lacked a shared agenda, and the coordination, networking and communication necessary to implement a more collaborative effort.

New centres and teams

Some recent developments in research related to mental health hold promise as host, partner or resource organizations for a new mental health research initiative. These include the newly inaugurated Hotchkiss Brain Institute (HBI) at the University of Calgary, which has received a $10 million donation from the Hotchkiss family in partnership with the Calgary Health Region (CHR) and the University of Lethbridge, and has a mission to advance research in neuroscience and mental health.[59] The Faculty of Nursing at the University of Alberta has recently been designated as a WHO/PAHO Collaborating Centre for Nursing and Mental Health.[60] A new Mental Health Population Research Interest Group has been formed in the Faculty of Medicine at the University of Calgary. The group has a critical mass of about 15 researchers, all of whom are active in population mental health and/or mental health services and policy research. These individuals are

linked to the Departments of Community Health Sciences, Psychiatry and Pediatrics, the Hotchkiss Brain Institute, the Markin Institute for Public Health, and the Centre for Health and Policy Studies as well as the CHR.[61] The University of Calgary is slated to be the fourth site for a national CIHR funded training program - "Research in Addictions and Mental Health Policy and Services (RAMHPS)" that is in its second year of operation at the University of British Columbia, the University of Toronto and the University of Montreal.[62,63] At the University of Alberta there are also two established basic science/clinical research teams.[64] These are the Neurochemical Research Unit (NRU) and the Bebensee Schizophrenia Research Unit (BSRU) in the Department of Psychiatry. NRU researchers study the neurochemical etiology of psychiatric disorders and pharmacotherapy. The BSRU, established in 2001, focuses on the clinical aspects of schizophrenia and early identification of psychosis.

The strong interest and commitment of Regional Health Authorities and community agencies

Excellent examples of service-based research and evaluation also exist in health regions and community agencies. One example is the recently completed evaluation of the new Health Innovation Fund supported Diversion program in Calgary. This project represents best-practice participatory evaluation research which examines outcomes and cost-effectiveness of a new service model.[65] Another is the developing research function of the Centre for Suicide Prevention.[66] Regional health authorities (RHAs) have also been active supporters of the SEARCH program, and several mental health professionals have taken SEARCH training. These developments, remain isolated, and capacity in regions for applying research and conducting evaluation remains variable. In simple terms of staffing, dedicated capacity in RHAs for service-focused research, evaluation, quality improvement and information management in mental health services ranges from no staff in some of the smaller regions, to 18.5 FTEs in one of the larger regions. Our service system (population-based and regionally integrated) also represents a major advantage for studying mental health at the population level and services across the full continuum of care. Few jurisdictions have that privilege.

New funding opportunities

Several very relevant potential streams of funding for a focused effort in mental health research are now available. These include:

CHSRF - "Research, Exchange, and Impact for System Support (REISS) grants" – these grants will sup decision-maker/researcher partnerships that will produce "high-potential-impact research, high-quality capacity building initiatives, and effective dissemination and implementation of results". Up to $500,000 per year over four years is available. CHSRF also provides research program grants and personnel awards.[14]

CIHR – A variety of operating grants, salary awards and team grants are available from CIHR. One very relevant new funding program is the Partnership for Health Improvement Grants. Funds of up to $100,000 are available to match partner donations for programs of research up to three years in duration.[10]

AHFMR – In addition to salary awards, studentships and operating grants, AHFMR has also recently launched its Programs in Health Services Research Program. Up to $300,000 per year for up to five years is available to support teams of investigators to pursue high priority health services research programs with strong decision-maker links.[67]

Other sources of relevant funding are the Canadian Foundation for Innovation (CFI),[68] the Social Sciences and Humanities Research Council (SSHRC),[69] a new capacity building initiative of the Canadian Coordinating Office for Health Technology Assessment (CCHOTA)[70] and the Innovation program of Alberta Innovation and Science.[71] Benefactors from the private sector have also increasingly lent their support to research initiatives where high need, high opportunity and/or specific integrated research plans have been developed.

As noted previously, a variety of general health research initiatives have been fostered in the province. In particular, our province is recognized as a leader in knowledge transfer.

TAKING OUR MENTAL HEALTH RESEARCH POTENTIAL TO THE NEXT LEVEL.

It is clear that we already have the building blocks for world-class mental health research in the province of Alberta. We lack only a common vision for mental health research and a coordinated research strategy around that vision.

While some other provinces have developed mechanisms for mental health research that are moving toward linkages between academia and service delivery incrementally, Alberta has a **unique opportunity** to fully integrate mental health research and evaluation programs with mental health policy and service delivery players including health regions and community agencies, through an integrated program of population mental health and practice-based services research. We can be innovators in some key areas such as knowledge translation and research impact measurement. A fully integrated "made in Alberta" mental health research program would represent a new model for research in practice that could be evaluated in terms of achieving its ultimate outcome of improved mental health of Albertans. Performance measurement of research investment is in its infancy around the world. We can also be responsive to policy and practice needs by encompassing systematic priority setting and planning, and offering more innovative synthesis, consultation and commissioned types of research. We have the opportunity to create synergies among researchers and practitioners by linking them, by creating a focal point for attracting more researchers, by aligning incentives to encourage researchers to collaborate and respond to priority needs, and by leveraging the expertise of the new health research specialist organizations in Alberta that are at the forefront of health research, but not necessarily mental health research. We can bridge the research and practice/policy worlds with an overarching research enterprise.

Our document, "A Plan for a Mental Health Research Program for Alberta" seeks to bridge that gap.

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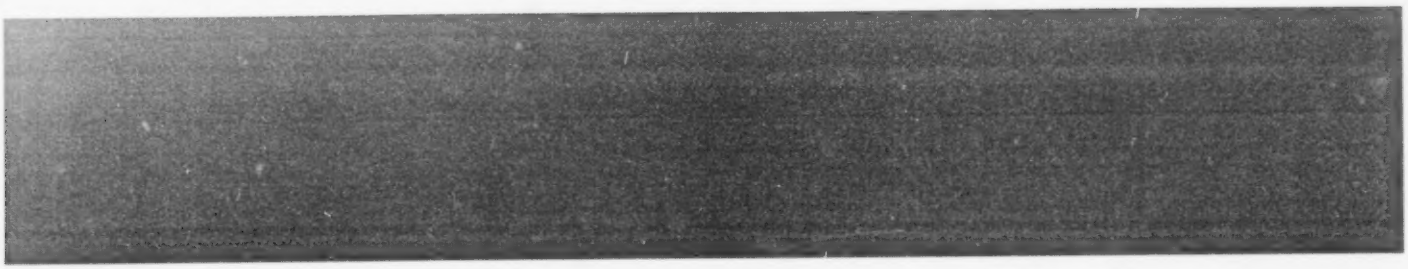

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GLOSSARY

Best Evidence
Sources of best evidence can be extrapolated from research and non-research foundations. Research evidence can include meta-analyses, integrated research reviews, experimental studies, observational studies, or correlational studies. Non-research evidence can entail: quality improvement and risk data, international, national and local standards, infection control data, patient preferences, clinical expertise, benchmarking, cost effectiveness analysis, pathology, and retrospective or concurrent chart reviews. *NB*, in the age of technological explosion, it is sometimes difficult to know what represents 'best evidence'.

Best Practice
The provision of care and service utilizing evidence-based decision-making and a continuous quality improvement approach focused on best outcome within the context of available resources. It operationalizes evidence-based practice. *(Review of Best Practices in Mental Health Reform, Health Canada, 1997)*

Community
A population that shares certain interests and affinities. *(Community Research Ethics Board of Alberta (CREBA), Alberta Heritage Foundation for Medical Research. Available from: **http://www.ahfmr.ab.ca/creba/definitions.shtml**)*

Community Health
The process of involving the community in improving its own health. It is a less specific concept than either Public Health or Population Health. *(CREBA, AHFMR. Available from: **http://www.ahfmr.ab.ca/creba/definitions.shtml**)*

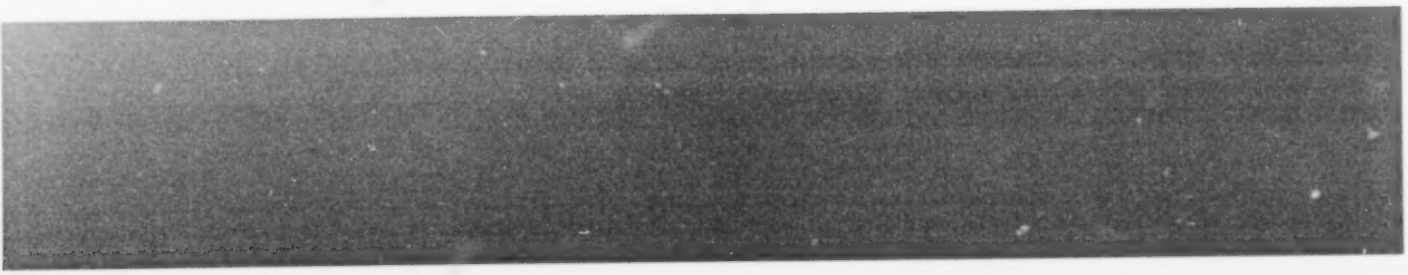
Community Health Research
Includes any systematic enquiry conducted wholly or partly in the community for the purpose of acquiring new knowledge. *(CREBA, AHFMR. Available from: **http://www.ahfmr.ab.ca/creba/definitions.shtml**)*

Community Health Services
Those services provided in the home or community [i.e. not within institutions], which are designed to improve the health of a defined group of people. Ideally, these services are based on an estimation of needs and equitable resource allocation. They include formal public health services, community-sponsored and community-focused health promotion, protection, preventive and rehabilitative services and programs provided by health coalitions. *(CREBA, AHFMR. Available from: **http://www.ahfmr.ab.ca/creba/definitions.shtml**)*

Co-morbidity
The co-occurrence of any two illnesses; often used to refer to the coexistence of a mental illness and an addictive disorder within an individual.

Dimensions of collaboration in research include:

- **Multi-disciplinary**
  Connecting with other disciplines but boundaries remain unchanged. Different disciplines work in parallel on common problems and research projects but with little interaction. There is no attempt at synthesis and results are shared within disciplinary boundaries with separate reports and papers. Example: Mental illness prevention researchers working on same problem from different disciplinary perspectives may not need to actively work with one another.
- **Inter-disciplinary**
  Coordinating with other disciplines; boundaries become permeable. Disciplines meet to plan a coordinated strategy to the research and retain their disciplinary perspectives to address their component of the problem. One report or paper with distinct sections is completed with the synthesis in the introduction and conclusion of the report or paper. Example: Mental health care professionals interested in anxiety and chronic depression may coordinate their efforts to build on each others' work.



- **Inter-sectoral**
  For example, lay-people/consumer groups, professional service providers, and researchers.
- **Multi-dimensional**
  For example, psycho-geriatric, biological, spiritual.
- **Multi-level**
  For example, RHA, inter-regional, provincial, national, international.
- **Trans-disciplinary**
  Boundaries are transformed. Disciplines become mutually embedded within each other and work together throughout design and implementation. Achieves a new level of synthesis. One report or paper is written with knowledge synthesis throughout and shared language emerges. Research results in a higher level of understanding that redraws existing boundaries and creates a new epistemology. Example: Research programs that address the impact of poverty on mental illness may include a number of academic disciplines as well as health professionals and citizens. Such teams work to develop policy and programs that reflect input from multiple disciplinary perspectives.

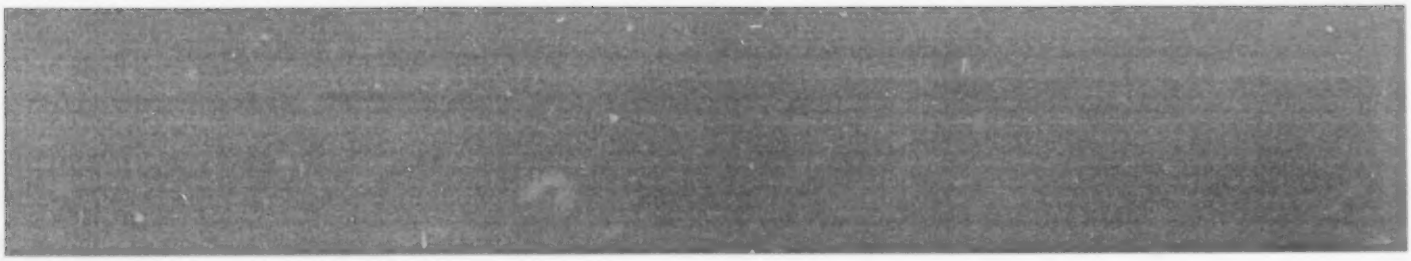
Dissemination
Goes beyond making research available through the traditional vehicles of journal publication and academic conference presentations. It involves a process of extracting the main messages or key implications derived from research results and communicating them to targeted groups of decision makers and other stakeholders in a way that encourages them to factor the research implications into their work. Face-to-face communication is encouraged whenever possible. *(Canadian Health Services Research Foundation (CHSRF))*

Epidemiology
The study of the frequency, distribution and determinants of disease in humans. Studies may be either descriptive (examining the distribution of disease) or analytical (looking for determinants or causes). *(Department of Public Health Sciences, Guy's King's and St. Thomas' Medical School. Available from: **http://www-phm.umds.ac.uk/teaching/ClinEpid/MedDemog.htm**).* The aim of epidemiologic research in mental health is to provide better information on the incidence and prevalence of mental health problems so as to improve planning and delivery of mental health services. *(Needs and Priorities Assessment, AMHB. Available from: **http://www.amhb.ab.ca/research/pdfs/full.pdf**)*

Ethics
The process of determining what values presently underlie, and what values ought to guide decisions and discussions in community research. *(CREBA, AHFMR. Available from: **http://www.ahfmr.ab.ca/creba/definitions.shtml**)*

Evidence-Based Medicine
An approach to health care that promotes the collection, interpretation, and integration of valid, important and applicable patient-reported, clinician observed, and research-derived evidence. The best available evidence, moderated by patient circumstances and preferences, is applied to improve the quality of clinical judgements. *(Searching medical literature for the best evidence. University of Sydney Library. Available from: **http://www.library.usyd.edu.au/subjects/medicine/tutorials/ebmtut/**)*

Evidence-Based Practice
A decision-making process based on the most available and current literature, studies, and expert opinion that is known to have beneficial and effective outcomes. To utilize evidence based decision-making, clinicians are using search skills, critical appraisal skills and clinical judgment. The best evidence must then be applied by a clinician with expertise in considering the patient's unique values and needs. The final aspect of the process is evaluation of the effectiveness of care and the continual improvement of the process. *(Review of Best Practices in Mental Health Reform, Health Canada, 1997)*



Four CIHR Themes

The CIHR categorizes health research in four broad themes:

1. bio-medical research; **2.** applied clinical research; **3.** research examining health systems and services; **4.** research into the health of populations, societal and cultural dimensions of health, and environmental influences on health. Exhaustive definitions are included below for reference purposes; these areas of research are not mutually exclusive, therefore the definitions are intended as guides and not as descriptions of eligible areas of research. (*see also* Four Pillars of Research)

Four Pillars of Research:

1. **Bio-medical Research**
   Research with the goal of understanding normal and abnormal human functioning, at the molecular, cellular, organ system and whole body levels, including development of tools and techniques to be applied for this purpose; and/or developing new therapies or devices which improve health or the quality of life of individuals, up to the point where they are tested on human subjects. Studies on human subjects that do not have a diagnostic or therapeutic orientation.

2. **Applied Clinical Research**
   Research with the goal of improving the diagnosis, and treatment, (including rehabilitation and palliation) of disease and injury in order to improve the health and quality of life of individuals as they pass through normal life stages. Research on or for the treatment of patients.

3. **Health Systems and Services Research**
   Research with the goal of improving the efficiency and effectiveness of health professionals and the health care system, through changes to practice and policy. Health services research is a multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors, affect access to health care, the quality and cost of health care, and ultimately our health and well-being.

4. **Public and Population Health**
   Research with the goal of improving the health of the Canadian population, or of defined sub-populations, through a better understanding of the ways in which social, cultural, environmental, occupational, and economic factors determine health status.

Health

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition. *(WHO)*

Health Gain

Health Gain is a measured improvement in the health of a population.
*(CREBA, AHFMR. Available from: **http://www.ahfmr.ab.ca/creba/definitions.shtml**)*

Health Information

Individually identifying diagnostic, treatment and care information or individually identifying registration information or both. *(Health Information Act)*

Health Research

A global term used to describe research undertaken to identify, resolve and prevent health problems and improve well-being within a broad determinants of health framework. This encompasses all different types of research including basic, fundamental, laboratory, biomedical, medical, clinical, applied, participatory action research and research utilizing Aboriginal ways of knowing, epidemiology, psycho-social, health promotion, public and population health, technology assessment, utilization analysis, outcomes evaluation, health economics, health systems and health delivery systems.

Health Technology Assessment
The systematic evaluation of the properties, effects and/or impacts of health care technology. It involves analyzing the available scientific evidence to provide objective information on the safety, effectiveness, economic and social implications of technologies, to support health care decisions and policy making at the local, regional, national and international levels. Health technologies include drugs, medical devices, medical and surgical procedures, and the administrative and support systems within which health care is delivered. *(Health Technology Assessment Unit, AHFMR. Available from: **http://www.ahfmr.ab.ca/hta/hta-publications/joint/alberta_needs_and_future_directions.pdf**)*

Healthcare Technologies
Includes drugs, devices, medical and surgical procedures and the organizational, administrative and support system in which health care is delivered.

Knowledge Transfer
A process by which relevant research information is made available and accessible for practice, planning, and policy-making through interactive engagement with audiences. Knowledge transfer is supported by user-friendly materials and a communication strategy that enhances the credibility of the organization. Where relevant, knowledge transfer reinforces key messages from the research. *NB*, there are many terms used to describe this knowledge transfer process: research transfer, knowledge exchange, knowledge translation, knowledge mobilization, research uptake, research/knowledge utilization, and dissemination. Although these terms are similar and are sometimes used interchangeably, each one has a slightly different meaning. *(The Program in Policy Decision–Making at McMaster University)*

Knowledge Translation
The exchange, synthesis and ethically sound application of researcher findings within a complex system of relationships among researchers and knowledge users. In other words, knowledge translation can be seen as an acceleration of the knowledge cycle, an acceleration of the natural transformation of knowledge into use. *(CIHR, 2003)*

Mental Health
Cannot be defined simply by the absence of detectable mental disease but a state of well-being in which the individual realizes his or her own abilities, can work productively and fruitfully, and is able to contribute to his or her community. *(World Mental Health: Problems and Priorities in Developing Countries, Desjarlais et al., Oxford University Press, 1995)*

Mental Health
The capacity of the individual, the group, and the environment to interact with one another in ways that promote subjective well-being, the optimal development and use of mental abilities (cognitive, affective and relational), the achievement of individual and collective goals consistent with justice and the attainment and preservation of conditions of fundamental equality. *(1981 WHO Report on the Social Dimensions of Mental Health)*

Mental Health Services
Describes the characteristics and activity of mental health care services including ambulatory and residential mental health-related care and treatment provided by hospitals, community-based services, general practitioners, private psychiatrists, some disability support services and prevention, promotion and early intervention services to improve mental health outcomes for at risk groups and the population as a whole.

Mental Illness
A term that refers collectively to all mental disorders; i.e., "health-related conditions that are characterized by alterations in thinking, mood, or behaviour (or some combination thereof) associated with distress and/or impaired functioning." *(World Health Day 2001 Resource Booklet produced by the American Association for Mental Health.
Available from: **www.aawhworldhealth.org**)*

Outcomes
A health status measure used in the context of assessing the effects of a health care intervention, or lack of intervention, or for measuring the extent to which a desired outcome or end-state is achieved. *(Long AF, 1996. Outcomes with audit: a process and outcome perspective, outcomes briefing, 7:5)*

Participatory Action Research (PAR)
Systematic inquiry, with the collaboration of those affected by the issue, for the purposes of education or effecting social change. PAR is committed to blurring the lines between the researchers and the researched and the strengthening of people's awareness of their own capabilities as researchers and agents of change. PAR involves consumer participation, power, leadership, and knowledge generation in the development, implementation and evaluation of services. Participant-researchers organize themselves to develop, implement and evaluate empowerment-orientated services, not only for each other but also for the larger health care and social communities in which they interact. The researchers role in participatory action research is to become an intimate knower and participant within the community, joining as a partner by assuming various roles, such as community organizer, meeting facilitator, community advocate, activist, or resource person for technical or material aid. *(Minkler, M et al. Ethical dilemmas in participatory action research: A case study from the disability community. Health Education & Behavior, Vol. 29 (1): 14-29 February 2002; Taylor, R et al. Developing and evaluating community-based services through participatory action research: Two case examples. The American Journal of Occupational Therapy, Vol. 58, (1) February 2004)*

Population Health
Focuses on factors and interrelated conditions that have an impact on the health of human populations (and sub populations) across the life stages. The research encompasses the social, economic and physical environments, personal, family and community health practices, individual capacity and coping skills, health services, human biology and early childhood development. [It] identifies systematic variations in patterns of occurrence and action to improve the health and well-being of the population. *(The National Health Research Development Program (NHRDP) from the Federal/Provincial/ Territorial Advisory Committee on Population Health (May 2-3, 1996). Available from: **http://www.chpna.ca/chpna/downloads/newsletters/healthpromo2.pdf**)*

Promising Practice
A promising practice:

- Incorporates the philosophy, values, characteristics, and indicators of other positive/effective public health interventions.
- Is based on guidelines, protocols, standards, or preferred practice patterns that have been proven to lead to effective public health outcomes.
- Is a process of continual quality improvement that:
  - Accumulates and applies knowledge about what is working and not working in different situations and contexts;
  - Continually incorporates lessons learned, feedback, and analysis to lead toward improvement/positive outcomes; and,
  - Allows for and incorporates expert review, feedback, and consensus from the public health field.
- Has an evaluation component/plan in place to move towards demonstration of effectiveness, however, it does not yet have evaluation data available to demonstrate positive outcomes.

Public Health
The science and the art of preventing disease, prolonging life and promoting health through organized community action. The health of the population is its foremost consideration; the resources of the community are fully utilized; the practice guidelines are pre-set, and progress towards defined objectives is continuously monitored. Utilizes the process of mobilizing local, regional, national and international resources to assure conditions in which people can be healthy, following a clear set of principles based on a foundation of sound biological, sociological and epidemiological research. *(CREBA, AHFMR. Available from: **http://www.ahfmr.ab.ca/creba/definitions.shtml**)*

Public Health Services
Those services that are provided in accord with public health principles.
*(CREBA, AHFMR. Available from: **http://www.ahfmr.ab.ca/creba/definitions.shtml**)*

Research
Can be described both as the "systematic investigation to establish facts" and more broadly as "a search for knowledge" *(Princeton University. Available from: **http://www.cogsci.princeton.edu/cgi-bin/webwn? stage=1&word=research)***. The actual methods used to ascertain this information can be varied. Quantitative methods focus on testing of hypotheses, finding generalizable results, measuring outcomes, or proving cause and effect relationships. Qualitative methods concentrate on exploring phenomena, developing theories, formulating hypotheses, and creating or expanding knowledge. *(NHR)* Additionally, indigenous ways of knowing also constitute a class of research. For the purposes of this Working Paper, the definition of research is left open to include numerous innovative, effective scientific strategies for understanding the world.

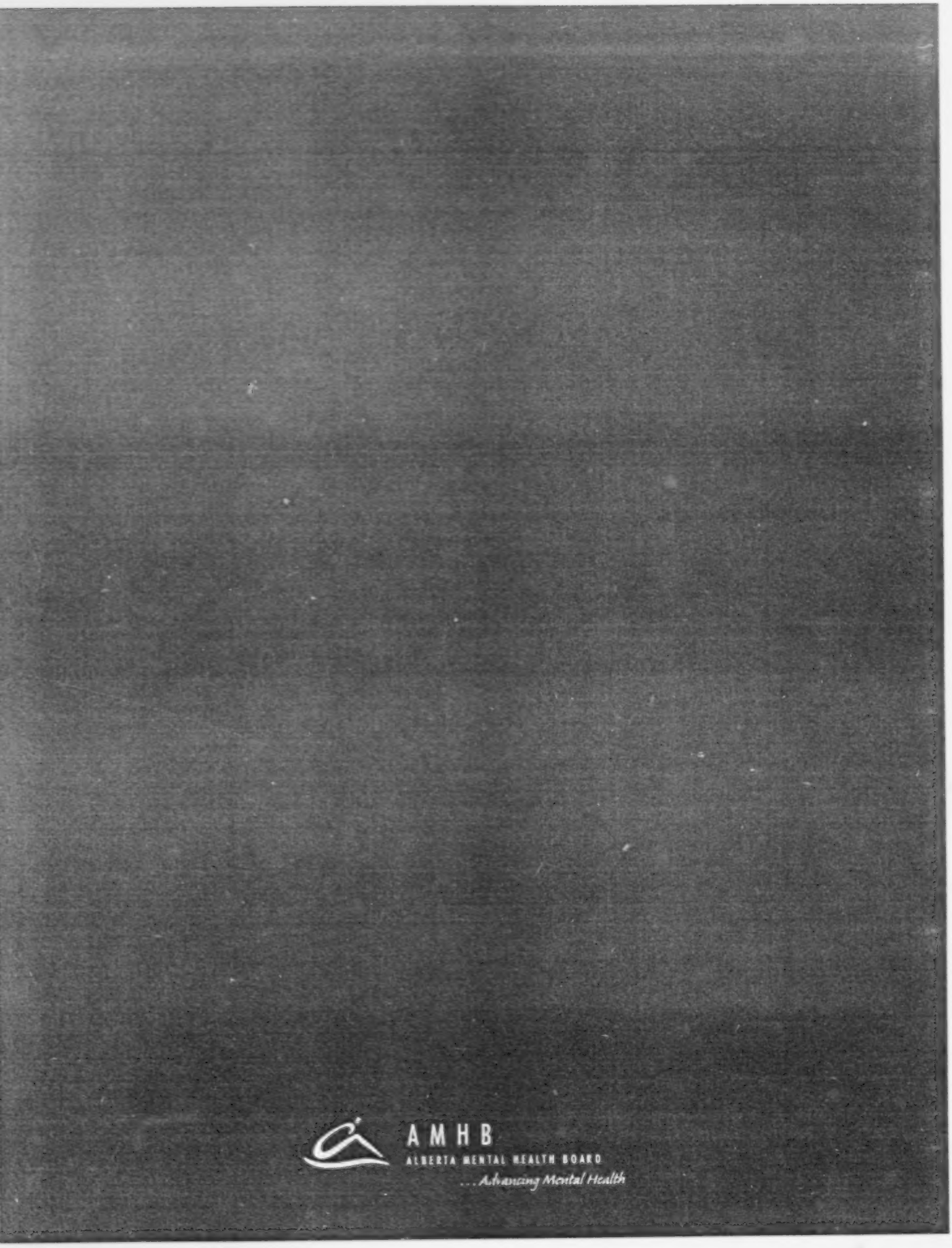
Research synthesis
Application of systematic procedures, including both qualitative and quantitative methods for reviewing and integrating available research evidence.

Science-based Practice
A science-based practice results from a rigorous process of research and evaluation that indicates effectiveness in improving public health outcomes for a target population. A science-based practice:

- Has been evaluated using a theory-based research methodology.
- Inherent in such research methodology is that the practice was implemented as intended in order to clearly links positive effects to the program/practice being evaluated and not to extraneous factors.
- Has been reviewed and substantiated by experts in the public health field according to predetermined standards of empirical research.
- Is replicable, and produces desirable results in a variety of settings.

Subjects of Research
Includes all persons or communities who are the focus of a researcher's inquiry. Ethics review is necessary when the collection and the use of information could deprive communities or human subjects of their dignity or jeopardize their individual physical or mental well-being. Persons studied on the basis of information that is already public are not deemed to be research participants for the purposes of this policy. *(CREBA, AHFMR. Available from: **http://www.ahfmr.ab.ca/creba/definitions.shtml)***

** Terms represent working definitions used in the development of this document. In some cases they were developed from a compendium of multiple sources, in an effort to generate the most complete and valid description of the term.*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